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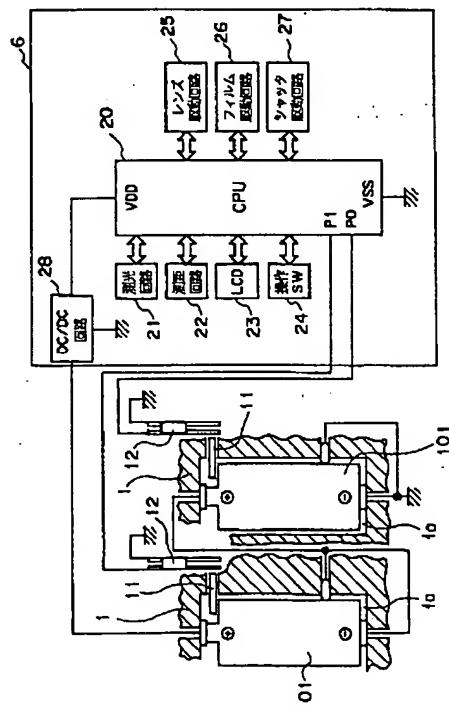
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(54)【発明の名称】カメラ

(57)【要約】

【課題】外形形状が略同じであって電気的特性の異なる二種類の電池を選択的に使用し得るようにしたカメラにおいて、異なる種類の電池の混在使用を未然に防止し得るカメラを提供する。

【解決手段】第1の電池101と、この第1の電池と外形形状が略同じであって電気的特性が異なる第2の電池102とを選択的に使用可能なカメラにおいて、第1の電池又は第2の電池のうち選択された電池を収納し得る共有空間を有する電池収納室1aと、この電池収納室に装填された電池が第1の電池と第2の電池のいずれの電池であるかを判別する電池判別手段(CPU20)と、この電池判別手段の出力に基づいて電池収納室に装填された電池の装填状況を表示する表示手段(LCD23)とを具備して構成する。



【特許請求の範囲】

【請求項1】 第1の電池と、この第1の電池と外形形状が略同じであって電気的特性が異なる第2の電池とを選択的に使用可能なカメラにおいて、上記第1の電池又は上記第2の電池のうち選択された電池を収納し得る共有空間を有する電池収納室と、この電池収納室に装填された電池が上記第1の電池と上記第2の電池のいずれの電池であるかを判別する電池判別手段と、この電池判別手段の出力に基づいて、上記電池収納室に装填された電池の装填状況を表示する表示手段と、を具備することを特徴とするカメラ。

【請求項2】 第1の電池と、この第1の電池と外形形状が略同じであって電気的特性が異なる第2の電池との二種類の電池を選択的に使用し得るカメラにおいて、上記第1の電池と上記第2の電池との少なくとも一方を二個収納可能な共有空間を有する電池収納室と、この電池収納室に装填された電池の種類が、上記第1の電池又は上記第2の電池のうちの一方である单一装填状態であるか又は上記第1の電池と上記第2の電池とが混在している混在装填状態であるかを判定する判定手段と、

を具備することを特徴とするカメラ。

【請求項3】 上記判定手段の判定結果によって、上記電池収納室に装填された電池の装填状況が上記混在装填状態である場合には、警告を行なう警告手段を具備することを特徴とする請求項2に記載のカメラ。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は、カメラ、詳しくは複数種類の電池を選択的に装填し使用することができるカメラに関するものである。

【0002】

【従来の技術】従来より、写真撮影等を行なうカメラ等に使用される主電源としては、例えば単三型のアルカリマンガン乾電池（以下、単三型乾電池という）やリチウム電池等の電池が一般的に用いられている。また、同一のカメラ等において使用し得る電池の種類は、一種類の電池のみに限定して設計されているのが普通である。

【0003】しかし、主に携帯して使用されるカメラ等の機器において、主電源としての電池の種類が限定されていると、そのカメラ等の機器を使用する環境が、その機器に対応する電池を常に入手し得る環境であるとは限らないことから、カメラ等の使用中に、いわゆる電池切れ等が生じた場合において、対応する所定の種類の電池を入手し得なかったとすると、以後、そのカメラの使用を継続して行なうことができないという問題が生ずる。

【0004】そこで、同一のカメラ等において、所定の複数種類の電池を選択的に使用し得るようにすれば、代替電池を入手し得る可能性が広がることから、上述のよ

うな状況となった場合に、使用不可能な状態になることを避けられる可能性が大きくなり、よってカメラ等の利便性を向上させることとなる。

【0005】このようなことを考慮して、同一のカメラにおいて少なくとも二種類の電池を選択的に使用し得るようにした手段についての提案が、例えば実開昭63-130752号公報等によってなされている。この実開昭63-130752号公報によって開示されているカメラは、C R 1 2 3 A型のリチウム電池（定格電圧3ボルト）等の長さの短い電池を一本収納し得る第1電池室と、単三型乾電池（定格電圧1.5ボルト）等の長さの長い電池を二本収納し得る第2電池室とを連設させてカメラ本体の内部に配置し、外形形状及び電気的な特性の異なる二種類の電池を選択的に装填し使用することができるよう構成されている。そして、このカメラでは、二種類の電池のうち何れか一方の電池を選択し装填した場合に、常に同じ電源電圧を供給し得るように構成されている。つまり、リチウム電池を装填した場合には、[3V(ボルト)×1本]であり、単三型乾電池を装填した場合には、[1.5V(ボルト)×2本]となるので、何れの種類の電池を選択しても常に電源電圧は、3V(ボルト)となるように、電源システムの互換性が図られているというものである。

【0006】ところで、近年においては、従来のアルカリマンガン乾電池等に代表される単三型乾電池に対して、これと外形形状が略同形状に形成され、電極の配置及び電気的な特性等が異なる新しいタイプのリチウム電池（以下、説明の便宜上、新型リチウム電池という）についての提案がなされている。

【0007】この新型リチウム電池は、長手方向の一方の端面に正電極が設けられ、電池本体の周面上に負電極が設けられてなるものである。また、外形形状は、従来の単三型乾電池と略同形状の円柱形状からなるものであるが、正電極の形状が従来の単三型乾電池等とは若干異なり、正電極の突出量が少なくなるように形成されている。

【0008】

【発明が解決しようとする課題】ところが、電気的な特性が異なるにも関わらず、外形形状が略同じに形成されている複数種類の電池が存在すると、カメラ等の機器等に設けられ電池を収納するための電池収納室に対しては、何れの電池をも装填し得ることとなる。この場合、一般的に機器の使用者が電池の種類を混同してしまうことに起因して、その機器が対応していない電池であるにも関わらず、電池収納室内にこれを誤って装填してしまうようなことも考えられる。

【0009】このような場合において、例えば二個の電池を直列接続するように構成された電源システムに対して、異なる種類の電池を混在させて装填したとすると、撮影待機状態にあるとき等、負荷が小さいときには、見

かけ上正常に動作しているように見えて、装填された各電池の内部インピーダンスがそれぞれ異なることに起因して、例えばモータ駆動時やストロボ充電時等、電圧変動（電圧降下）が大きくなる過負荷時においては、突然に動作不能に陥ってしまうことが考えられる。

【0010】このように、カメラ等の機器を使用する全ての使用者が、そのカメラ等の機器に対応している電池の電気的な特性を理解し、電池の種類を判断して使い分けすることは到底困難なことである。したがって、外形形状が略同じである種類の異なる電池が市場に存在する場合、異なる種類の電池同士を誤ってカメラ等の機器等に装填してしまうといった失敗は、避けることができないものと思われる。

【0011】そこで、このような失敗を予め防止し得ると共に、使用者の利便性等をも考慮すると、外形形状が略同じであって異なる種類の電池（例えば従来の単三型乾電池と新型リチウム電池等）の何れの電池を装填しても使用することができるよう機器側の電源システムを構成することが望ましい。しかし、電気的な特性が大きく異なる複数種類の電池を混在させるような使用は、禁止するように構成しなければならないことは当然である。

【0012】本発明は、上述した点に鑑みてなされたものであって、その目的とするところは、外形形状が略同じであって電気的特性の異なる二種類の電池を選択的に使用し得るようにしたカメラであって、電池収納室の内部に装填された電池の種類を判別し、異なる種類の電池が混在して装填された場合には、これを検出して、その旨の表示又は警告を行なうことにより、異なる種類の電池の混在使用を未然に防止することのできるカメラを提供することである。

【0013】

【課題を解決するための手段】上記目的を達成するため、第1の発明によるカメラは、第1の電池とこの第1の電池と外形形状が略同じであって電気的特性が異なる第2の電池とを選択的に使用可能なカメラにおいて、上記第1の電池又は上記第2の電池のうち選択された電池を収納し得る共有空間を有する電池収納室と、この電池収納室に装填された電池が上記第1の電池と上記第2の電池のいずれの電池であるかを判別する電池判別手段と、この電池判別手段の出力に基づいて上記電池収納室に装填された電池の装填状況を表示する表示手段とを具備することを特徴とする。

【0014】また、第2の発明によるカメラは、第1の電池とこの第1の電池と外形形状が略同じであって電気的特性が異なる第2の電池との二種類の電池を選択的に使用し得るカメラにおいて、上記第1の電池と上記第2の電池との少なくとも一方を二個収納可能な共有空間を有する電池収納室と、この電池収納室に装填された電池の種類が、上記第1の電池又は上記第2の電池のうちの

一方である單一装填状態であるか又は上記第1の電池と上記第2の電池とが混在している混在装填状態であるかを判定する判定手段とを具備することを特徴とする。

【0015】そして、第3の発明は、上記第2の発明によるカメラにおいて、上記判定手段の判定結果によって、上記電池収納室に装填された電池の装填状況が上記混在装填状態である場合には、警告を行なう警告手段を具備することを特徴とする。

【0016】

【発明の実施の形態】以下、図示の実施の形態によって本発明を説明する。本発明の一実施形態のカメラは、図1の概念図に示すように、二種類の電池の一方の電極に見られる僅かな形状の相違に基づいて電池収納室に装填された電池の種類に応じた所定の検出信号を出力する電池識別手段と、この電池識別手段からの信号に基づいて装填された電池の装填状況を判定し所定の信号を出力する判定手段と、この判定信号に基づいて電池が混在して装填されていると判断された場合には、その旨の警告を行なうための信号を出力する警告手段とを具備して構成されている。したがって、このような構成により、本発明によれば異なる種類の電池の混在使用を未然に防止し得ることとなる。以下に本実施形態のカメラについて詳述する。

【0017】図2は、本発明の一実施形態のカメラの概略を示すブロック構成図である。この図2においては、図面の繁雑化を避けるために本発明に関連する部分のみを図示している。

【0018】本実施形態のカメラは、図2に示すようにカメラ本体1の内部に二本の電池をそれぞれ収納し得る収納空間を形成する電池収納室1aと、この電池収納室1aの近傍に設けられた運動部材であるレバーパート11及び電池検出手段である検出スイッチ12とによって構成される電池識別手段2（図1参照。各構成部材の詳細は後述する）と、本カメラのシステムを制御する各種の電気回路からなる制御システム6等によって構成されている。

【0019】電池収納室1aは、制御システム6と電気的に接続されている。したがって電池収納室1aに装填された電池の電力は、DC/DC回路28を介して本カメラのシステム全体を制御する制御回路であるCPU20に供給されるようになっている。このCPU20には、被写体輝度等を測定し適正露出値を演算する測光回路21・被写体までの距離の演算を行なう測距回路22・撮影レンズを駆動して合焦動作やズーム動作を行なうためのレンズ駆動回路25・フィルム巻き上げや巻戻動作を行なうフィルム駆動回路26・撮影動作時にシャッタ羽根等を駆動するためのシャッタ駆動回路27等や、カメラの動作モード・撮影情報等の各種情報等、カメラの状態を表示する表示手段である液晶表示装置（LCD）23、電源スイッチ・レリーズスイッチ等の複数の

スイッチ群からなる操作 SW24 等が電気的に接続されている。そして、上述の各回路等は、CPU20 によって制御されるようになっている。また、操作 SW24 が使用者により操作されることによって生じる指令信号を受けて、CPU20 は、上述の各種の回路を制御し、各種の動作を行なわしめるように構成されている。

【0020】また、電池収納室 1a の近傍に設けられたレバー部材 11 は、電池収納室 1a に装填される電池の種類によって移動し得るように形成されていて、このレバー部材 11 が検出スイッチ 12 に作用するようになっている。そして、この検出スイッチ 12 から発生される検出信号は、CPU20 へと出力されるようになっており、これを受けて CPU20 は、電池収納室 1a に装填された電池の種類を判別する電池判別手段の役目をしている。なお図 2 では、二つの電池収納室 1a (第 1 電池収納部及び第 2 電池収納部) の内部に第 1 の電池 101 (詳細は後述する) が装填されている状態を示している。

【0021】ここで、電池収納室 1a とその近傍に配設される電池識別手段について、さらに詳しく説明する。図 3・図 4 は、本発明の一実施形態のカメラにおいて、電池収納室の一部を拡大して示す要部拡大断面図であって、図 3 は、本カメラの電池収納室に第 1 の電池が装填されている状態を示し、図 4 は、本カメラの電池収納室に第 2 の電池が装填されている状態を示している。なお、図 2 及び後述する図 8・図 9 では、図面の繁雑化を避けるため、レバー部材 11 の形状を簡略化して示しており、図 3・図 4 でのみ詳細な形状を図示している。

【0022】本実施形態のカメラにおいて、電池収納室 1a に装填し使用し得る電池は、図 2・図 3 において符合 101 で示す第 1 の電池、例えばアルカリマンガン乾電池等の従来の単三型乾電池と、図 4 において符合 102 で示す第 2 の電池、例えば上述の新型リチウム電池である。本カメラは、この二種類の電池を選択的に装填して使用することができるよう、その電源システムが形成されているものである。

【0023】第 1 の電池 101 及び第 2 の電池 102 は、外形形状が略同じ円柱形状からなり、また略同径同寸法となるように設定されており、第 1 の電池 101 と第 2 の電池 102 の双方とも、長手方向の一方の端面に正電極 (+) が設けられている。第 1 の電池 101 の正電極 (+) は、外部に向けて若干突出するように形成された凸部に設けられている一方、第 2 の電池 102 の正電極 (+) 側の端面は、略平面形状となっている。また、第 1 の電池 101 の負電極 (-) は、長手方向の他方の端面に設けられ、第 2 の電池 102 の負電極 (-) は、電池本体の周面の一部に略全周にわたって設けられている。

【0024】このように第 1 の電池 101 と第 2 の電池 102 とのそれぞれの正電極 (+) は、略同位置に設け

られているが、両者の形状は僅かに相違している。一方、負電極 (-) の配置は、両電池 101・102 で異なる位置になるように構成されている。さらに、両者の電気的な特性は異ならせて設定されている。

【0025】上記第 1 の電池 101 を上記電池収納室 1a の内部に装填すると図 2・図 3 に示すようになる。また第 2 の電池 102 を電池収納室 1a の内部に装填すると図 4 に示すようになる。

【0026】即ち第 1 の電池 101 及び第 2 の電池 102 の正電極 (+) は共に、電池収納室 1a の内部において長手方向の一端面に配設された第 1 接触片 14 に接触するようになっている。また第 1 の電池 101 の負電極 (-) は、電池収納室 1a の内部において長手方向の他端面に配設された第 2 接触片 15 に接触するようになっている。そして、上記第 1 接触片 14 は、本カメラ 1 の制御システム 6 に接続されている一方、上記第 2 接触片 15 は、後述する第 3 接触片 16 と共に接地されている。

【0027】一方、電池収納室 1a の側壁面には、図 3 に示すように第 2 の電池 102 の負電極 (-) に接触し得る位置に、第 3 接触片 16 が配設されている。したがって、電池収納室 1a に第 2 の電池 102 が装填されると、第 3 接触片 16 が電池 102 の負電極に接触するようになっている。

【0028】第 1 の電池 101 の正電極 (+) の近傍には、電池収納室 1a 側の側壁面に対向する位置に孔部 1b が穿設されており、この孔部 1b からは、レバー部材 11 の先端当接部 11a が電池収納室 1a に対して突没自在に配設されている。このレバー部材 11 は、カメラ 1 の内部において電池収納室 1a 近傍の固定軸部材 1c によって回動自在に軸支されているものである。また、レバー部材 11 の作用腕部の中程には、一端がカメラ 1 の内部の固定部材に係止され、図 3 に示す矢印 X 方向に付勢力を有する伸長性の付勢ばね等からなる付勢部材 13 の一端部が係止されている。これによりレバー部材 11 には、常に反時計方向へと回動させる付勢力が付与されている。

【0029】また、電池収納室 1a の近傍であってレバー部材 11 の回動領域内には、装填された電池の種類を検出し識別するための電池検出手段である検出スイッチ 12 が設けられている。この検出スイッチ 12 は、二つの端子 12a・12b と端子台 12c 等によって形成された一般的な形状のスイッチであって、端子 12a・12b が接触することによって所定の検出信号が発生するようになっている。この検出信号は、制御システム 6 の CPU20 に伝達されるようになっている。

【0030】一方、上記判定手段 3 の構成は、例えば図 5 に示すようになっている。この例では、二つの検出スイッチ 12 (第 1 電池検出手段及び第 2 電池検出手段) からのそれぞれの検出信号 A・B に基づいて、判定手段

3から三つの出力信号(OUT)A・B・Cが出力されるようになっている。これらの出力信号は、警告手段4に対して出力され、この警告手段4は、例えば警告音等を発生させたり、表示手段(LCD23等)を用いて所定の警告表示等を行なわしめるように構成されている。

【0031】この警告手段4による警告は、電池識別手段2(レバー部材11及び検出スイッチ12)の検出信号に基づいて判定手段3(CPU20)が二つの電池収納室1aに異なる種類の電池が装填されたと判定した場合(混在装填状態)にのみ、発生するようになっている。これにより、本実施形態のカメラにおいては、種類の異なる電池の混在使用を防止するようにしている。なお、図6では、出力信号[OUT・B]を例にとって警告手段4を図示している。

【0032】また、検出スイッチ12によって発生される検出信号と、この検出信号に基づいて判定手段3において発生される出力信号の関係は、図7に示す表のようになっている。

【0033】以上のように構成された本実施形態のカメラにおける電池収納室1aに対して電池を装填した場合の作用を上述の図3・図4及び図8・図9によって、以下に説明する。なお、図8・図9は、図3・図4と同様に本実施形態のカメラの電池収納室の近傍を拡大して示す要部拡大断面図であって、図8は、二つの電池収納室に第1の電池が装填されている单一装填状態を示し、図9は、二つの電池収納室の一方に第1の電池が、他方に第2の電池が装填されている混在装填状態を示す図である。

【0034】まず、図3・図8に示すように二つの電池収納室1aに第1の電池101が装填された場合(第1の電池101の单一装填状態)には、正電極(+)が第1接触片14に、負電極(-)が第2接触片15にそれぞれ接触する。このとき装填された第1の電池101の正電極(+)側の端面と、この端面に対向する電池収納室1aの内壁面との間には、同電池101の正電極

(+)側の端面に設けられる凸部によって、若干の隙間が生じている。したがって、レバー部材11は、付勢部材13の矢印X方向(図2参照)への付勢力によって、通常の状態、即ち先端当接部11aを電池収納室1aの内部に若干突出させた所定の位置に位置決めされた状態が保持されている。そして、検出スイッチ12は、オフ状態であり、同検出スイッチ12から生じる検出信号は、図7に示すように[H]の状態のまま変化しない。この[H]信号は、制御システム6のCPU20に伝達される。

【0035】一方、図9に示すように一方の電池収納室1aに第1の電池101が、他方の電池収納室1aに第2の電池102が装填された場合(第1の電池101及び第2の電池102の混在装填状態)においては、第1の電池101が装填される側の一方の電池収納室1aで

は、上述と同様である(図3・図8参照)。

【0036】また、第2の電池102が装填される側の他方の電池収納室1aでは、図4・図9に示すように正電極(+)が第1接触片14に接触するのは同様である。また、負電極(-)は第3接触片16に接触する。この場合において装填された第2の電池102の正電極(+)側の端面と、この端面に対向する電池収納室1aの内壁面との間には、第1の電池101を装填した場合に見られる若干の隙間は生じない。これは、第2の電池102の正電極(+)側は、第1の電池101とは異なり、正電極(+)側の端面が略平面となるように形成されているためである。

【0037】したがって、レバー部材11は、第2の電池102の正電極(+)側の端面の側縁部によって付勢部材13の付勢力に抗して回動し、付勢部材13を図3の矢印X2方向に緊縮させる。これによりレバー部材11の先端当接部11aは、検出スイッチ12の一方の端子12aを押圧し端子12bに当接させる。すると、この検出スイッチ12は、図7に示すように所定の検出信号[L]を発生させ、同信号[L]は、制御システム6のCPU20に伝達される。

【0038】なお、この場合において、図4・図9に示すように第2接触片15が第2の電池102の正電極(+)の配設面とは異なる他端面に接触するが、この他端面は、絶縁されているので何の問題も生じない。

【0039】図10・図11・図12は、本カメラにおける動作シーケンスをそれぞれ示しており、図10は【パワーオンリセット・パワーSWオン】の処理を、図11は【リリーズ処理】を、図12は【バッテリチェック】の処理をそれぞれ示すフローチャートである。

【0040】本カメラにおける【パワーオンリセット・パワーSWオン】の処理は、図10に示すように、電源スイッチ等(パワースイッチ等。図示せず)が、オン操作されることにより開始する。

【0041】まず、ステップS1において、初期設定が行なわれ、次のステップS2において、割込み設定が行なわれる。次いでステップS3において【バッテリチェック】の処理(図12において詳述する)が実行された後、ステップS4においてパワーSW(図示せず)の状態を確認する。ここで、パワーSWがオフ状態へと操作されたことが確認されるとステップS9の処理に進み、このステップS9において、LCD23の駆動を停止した後、ステップS10において、本カメラは省エネモードに設定されて、待機状態となる(スタンバイ)。

【0042】また、上述のステップS4において、パワーSWがオン状態であることが確認されるとステップS5の処理に進み、このステップS5において、カメラの動作モード等の状態をLCD23に表示した後、ステップS6において、【ストロボ充電】の処理が実行され、続けてステップS7において、第1リリーズスイッチ

(1 R SW; 図示せず) が操作されたか否かの確認を行なう。ここで、1 R SWが操作されてオン状態になるとステップS 8の【レリーズ処理】のサブルーチン(図10参照)が実行された後、上述のステップS 4の処理に戻り、以降の処理を繰り返す。

【0043】一方、上述のステップS 7において、1 R SWのオフ状態が確認されると、ステップS 4の処理に戻り、このステップS 4において、再びパワーSWの状態を確認し、以降の処理を繰り返す。

【0044】図11は、上述の【レリーズ処理】のサブルーチンを示すフローチャートである。この【レリーズ処理】については、一般的なカメラの動作シーケンスと同様である。

【0045】本カメラにおける【レリーズ処理】のシーケンスを簡単に説明すると、上述の図10におけるステップS 7の1 R SWのオン信号を受けて、まずステップS 1 1において、測距回路2 2によって測距動作が行なわれ、ステップS 1 2において測光回路2 1によって測光動作が行なわれる。次にステップS 1 3において、第2レリーズスイッチ(2 R SW; 図示せず)の信号が確認される。ここでオン状態とされた場合には、ステップS 1 4の処理に進み、オフ状態であれば、ステップS 1 7の処理に進む。

【0046】ステップS 1 4において、上述のステップS 1 1による測距結果等に基づいてレンズ駆動回路2 5によってレンズ駆動動作が実行され、続いてステップS 1 5において上述のステップS 1 2による測光結果等に基づいてシャッタ駆動回路2 7によってシャッタ等が駆動されて撮影動作が実行される。さらに、ステップS 1 6において、フィルム駆動回路2 6によって、次の撮影コマを撮影準備位置に移動させるためのフィルム給送動作が実行される。その後、一連のレリーズ動作が終了し、図10のステップS 4に復帰する(リターン)。

【0047】一方、上述のステップS 1 3において、2 R SWがオフ状態であると判断されてステップS 1 7の処理に進むと、このステップS 1 7において、再度1 R SWの信号の確認を行なう。ここで、1 R SWがオン状態である場合には、上述のステップS 1 3の処理に戻り、以降の処理を繰り返す。また、1 R SWがオフ状態とされた場合には、一連のレリーズ処理が中断されたものと判断されて、図10のステップS 4に復帰する(リターン)。

【0048】次に、図10のステップS 3における【バッテリチェック】の処理の動作シーケンスを、図12によってさらに詳しく説明する。図12に示すように、まずステップS 2 1において、CPU 2 0は、二つの検出スイッチ1 2からの二つの検出信号(P 0・P 1)を読み込む。なお、ここで検出信号P 0・P 1は、上述の説明において検出信号A・Bに相当するものである。

【0049】次のステップS 2 2において、読み込んだ

検出信号のうち一方の検出信号P 0がP 0=Lであるか否かの確認を、図7を参照して行なう。ここで、P 0=Lではない(P 0=Hである)と判断された場合には、一方の電池収納室1 aに単三型乾電池である第1の電池1 0 1が装填されているものとして、次のステップS 2 4の処理に進む。

【0050】ステップS 2 4においては、同様に図7を参照して他方の検出信号P 1=Lであるか否かの確認を行なう。ここで、P 1=Lではない(P 1=Hである)と判断された場合には、他方の電池収納室1 aにも単三型乾電池である第1の電池1 0 1が装填されているものとして、次のステップS 2 7の処理に進む。

【0051】一方、ステップS 2 2において、P 0=Lであると判断され、次のステップS 2 3においてP 1=Lであると判断された場合には、二つの電池収納室1 aには共に新型リチウム電池である第2の電池1 0 2が装填されているものとして、次のステップS 2 7の処理に進む。

【0052】つまり、二つの電池収納室1 aの双方に同種類の電池が装填されている単一装填状態にあると判断された場合にはステップS 2 7の処理に進み、このステップS 2 7においては、【ダミーロードオン】の処理、即ち実際のバッテリチェック動作が実行された後、ステップS 2 8の処理に進み、このステップS 2 8において、【判定処理】のシーケンスが実行される。そして、一連の【バッテリチェック】の処理を終了し、図10のステップS 4の処理に復帰する(リターン)。

【0053】他方、ステップS 2 2において、P 0=Lであると判断され、次のステップS 2 3において、P 1=Lではない(P 1=Hである)と判断された場合には、一方の電池収納室1 aには新型リチウム電池である第2の電池1 0 2が、他方の電池収納室1 aには単三型乾電池である第1の電池1 0 1がそれぞれ装填されているものとして、ステップS 2 5の処理に進む。

【0054】また、ステップS 2 2において、P 0=Lではない(P 0=Hである)と判断され、次のステップS 2 4において、P 1=Lであると判断された場合には、一方の電池収納室1 aには単三型乾電池である第1の電池1 0 1が、他方の電池収納室1 aには新型リチウム電池である第2の電池1 0 2がそれぞれ装填されているものとして、ステップS 2 5の処理に進む。

【0055】つまり、二つの電池収納室1 aの双方に異なる種類の電池がそれぞれ装填されている混在装填状態にあると判断された場合には、ステップS 2 5の処理に進み、このステップS 2 5においては、警告手段4による警告、例えば警告音の発生や、LCD 2 3を用いた警告表示等を行なう。そして、ステップS 2 6において、【ダメージ処理】のシーケンスを実行した後、一連の動作を終了する。

【0056】以上説明したように上記一実施形態によれ

ば、二つの電池収納室1aに装填された電池の種類をそれぞれ検出し、異なる電池が装填された場合には、警告手段4による警告を行なうようにすると共に、カメラの動作を禁止するようにしたので、外形形状が略同じであるにも関わらず、電気的特性が異なるように構成された異なる種類の電池を混在させて使用してしまうことを防ぐことができる。

【0057】〔付記〕また、以上述べた発明の実施形態によれば、以下のような構成を有する発明を得ることができる。即ち、

(1) 第1の電池と、この第1の電池と外形形状は略同じであって電気的特性が異なる第2の電池との二種類の電池を選択的に使用可能なカメラにおいて、上記第1の電池と上記第2の電池とが共有する収納空間が形成され、かつ上記第1の電池と上記第2の電池のいずれか一方を選択的に一つ収納可能とする第1電池収納部と、上記第1の電池と上記第2の電池とが共有する収納空間が形成され、かつ上記第1の電池と上記第2の電池のいずれか一方を選択的に一つ収納可能とする第2電池収納部と、上記第1電池収納部と上記第2電池収納部とを有する電池収納室と、上記第1電池収納部に設けられ、この第1電池収納部に装填された電池が上記第1の電池であるのか上記第2の電池であるのかを検出する第1電池検出手段と、上記第2電池収納部に設けられ、この第2電池収納部に装填された電池が上記第1の電池であるのか上記第2の電池であるのかを検出する第2電池検出手段と、上記第1電池検出手段及び上記第2電池検出手段の検出結果に応じて上記電池収納室に収納されている電池の種類を判定する判定手段と、を具備するカメラ。

【0058】(2) 付記1に記載のカメラにおいて、上記判定手段は、上記電池収納室に装填された電池の種類の状況が、上記第1の電池あるいは上記第2の電池のうちいずれか一方の種類のみが装填された单一装填状態であるのか、上記第1の電池と上記第2の電池とが混在して装填された混在装填状態であるのかを判定する。

【0059】(3) 付記1に記載のカメラにおいて、上記判定手段の出力に基づいて上記第1電池収納部に上記第1の電池又は上記第2の電池の一方が、上記第2電池収納部に上記第1の電池又は上記第2の電池の他方が混在して装填されている場合に、その旨の警告を行なう警告手段を、さらに具備する。

【0060】(4) 付記1に記載のカメラにおいて、上記判定手段の出力に基づいて上記電池収納室に装填された電池の種類の装填状況に応じて表示を行なう表示手段を、さらに具備する。

【0061】(5) 付記1に記載のカメラにおいて、上記第1電池検出手段及び上記第2電池検出手段は、上記第1の電池と上記第2の電池の外形形状の一部の相違箇所を利用して装填された電池の種類を検出する。

【0062】(6) 付記5に記載のカメラにおいて、上

記第1電池検出手段及び上記第2電池検出手段は、それぞれ電気的に第1の信号又は第2の信号を出力可能な状態を有する第1検出スイッチ及び第2検出スイッチと、上記電池収納室に装填された上記第1の電池及び上記第2の電池の外周部に当接することで変位可能に設けられた連動部材とを備えて構成される。

【0063】(7) 付記5に記載のカメラにおいて、上記第1電池検出手段及び上記第2電池検出手段は、上記第1の電池と上記第2の電池の外形形状の一部の相違箇所と当接することで、上記第1の電池が装填されている場合には第1の状態に、上記第2の電池が装填されている場合には第2の状態に変位する連動部材と、上記第1の状態にあるときに第1の信号を出し、上記第2の状態にあるときに第2の信号を出力する検出スイッチとを備えて構成される。

【0064】(8) 付記1又は付記2, 3, 4, 5, 6, 7のいずれか一つに記載のカメラにおいて、上記第1の電池は、長手方向の両端面に正極及び負極の二つの電極を有しており、上記第2の電池は、長手方向の一端面に正極又は負極のいずれか一方の電極が設けられ、長手方向に交差する周面上に正極又は負極のうち他方の電極を有しているものである。

【0065】(9) 付記1又は付記2, 3, 4, 5, 6, 7のいずれか一つに記載のカメラにおいて、上記第1の電池と上記第2の電池とは、電極配置および定格電圧がそれぞれ異なるものである。

【0066】(10) 外形形状が概略同じであって電気的特性が異なる複数種類の電池を選択的に使用できるカメラにおいて、選択された上記電池を収納することができる電池収納室と、この電池収納室に装填された電池の装填状況を判別する電池判別手段と、この電池判別手段の出力に基いて上記電池収納室に装填された電池の装填状況を表示する表示手段と、を具備するカメラ。

【0067】(11) 外形形状が概略同じであって電気的特性が異なる複数種類の電池を選択的に使用できるカメラにおいて、選択された上記電池を収納することができる電池収納室と、この電池収納室に装填された電池の装填状況が同一種類の電池のみの状態であるのか、あるいは異種の電池が混在した装填状態であるのかを判定する判定手段と、を具備するカメラ。

【0068】(12) 付記1に記載のカメラにおいて、上記判定手段の判定結果により、上記電池収納室に装填された電池の装填状況が異種の電池を混在させた装填状態のときには、警告を行なう警告手段を、さらに具備する。

【0069】

【発明の効果】以上述べたように本発明によれば、外形形状が略同じであって電気的特性の異なる二種類の電池を選択的に使用し得るようになしたカメラであって、電池収納室の内部に装填された電池の種類を判別し、異なる

種類の電池が混在して装填された場合には、これを検出して、その旨の警告を行なうことにより、異なる種類の電池の混在使用を未然に防止し得るカメラを提供することができる。

【図面の簡単な説明】

【図 1】本発明を示す概念図。

【図 2】本発明の一実施形態のカメラの概略を示すブロック構成図。

【図 3】本発明の一実施形態のカメラの電池収納室の一部を拡大して示す要部拡大断面図であって、電池収納室に第 1 の電池が装填されている状態を示す図。

【図 4】本発明の一実施形態のカメラの電池収納室の一部を拡大して示す要部拡大断面図であって、電池収納室に第 2 の電池が装填されている状態を示す図。

【図 5】図 1 の判定手段の具体的な構成例を示す図。

【図 6】図 1 の警告手段の具体的な構成例を示す図。

【図 7】図 2 のカメラにおける検出スイッチにより発生される検出信号と、この検出信号に基づいて判定手段により発生される出力信号の関係を示す図。

【図 8】図 1 のカメラの二つの電池収納室に第 1 の電池が装填されている状態を示す要部拡大断面図。

【図 9】図 1 のカメラの二つの電池収納室の一方に第 1 の電池が、他方に第 2 の電池が装填されている状態を示す要部拡大断面図。

【図 10】図 1 のカメラにおける動作シーケンスのうち [パワーオンリセット・パワー SW オン] の処理を示すフローチャート。

【図 11】図 1 のカメラにおける動作シーケンスのうち [リリーズ処理] を示すフローチャート。

【図 12】図 1 のカメラにおける動作シーケンスのうち [バッテリチェック] の処理を示すフローチャート。

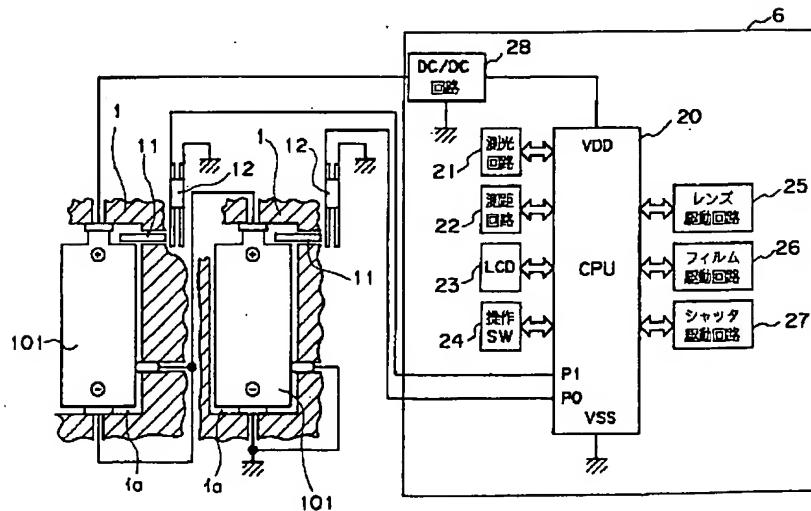
【符号の説明】

1	…カメラ本体
1 a	…電池収納室
2	…電池識別手段
3	…判定手段
4	…警告手段
6	…制御システム
1 1	…レバーパート (電池識別手段、運動部材)
1 2	…検出スイッチ (電池識別手段、電池検出手段)
1 4	…第 1 接触片
1 5	…第 2 接触片
1 6	…第 3 接触片
2 0	…CPU (制御手段；電池判別手段、判定手段)
2 3	…LCD (液晶表示装置；表示手段、警告手段)
1 0 1	…第 1 の電池
1 0 2	…第 2 の電池

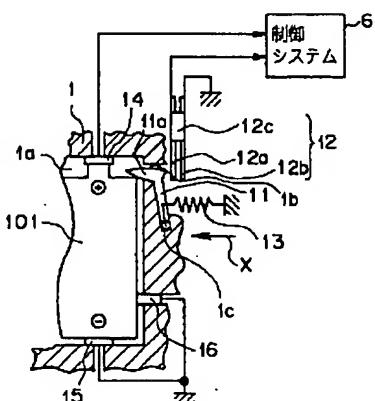
【図 1】



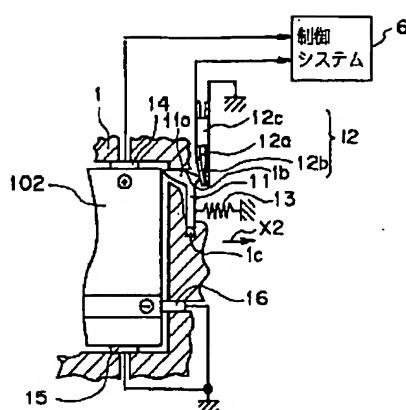
【図 2】



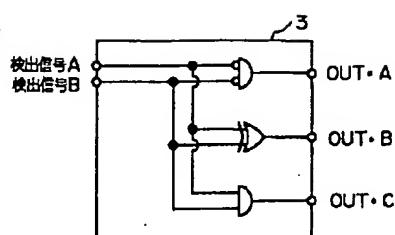
【図 3】



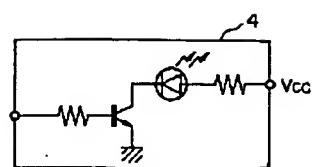
【図4】



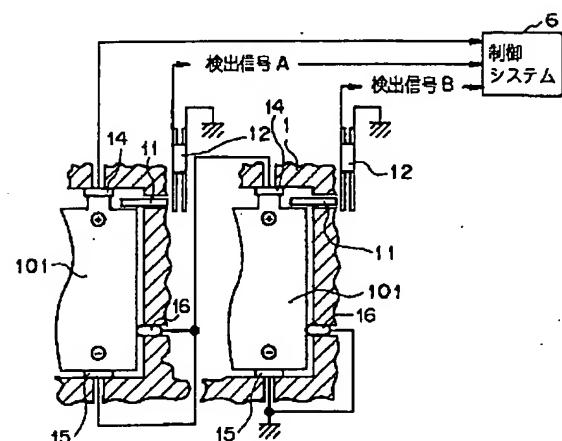
【図5】



【図6】



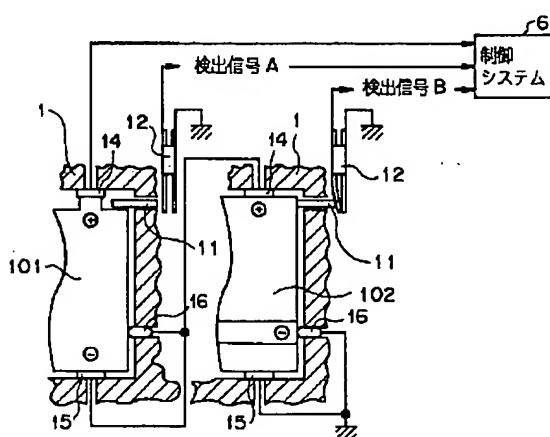
【図8】



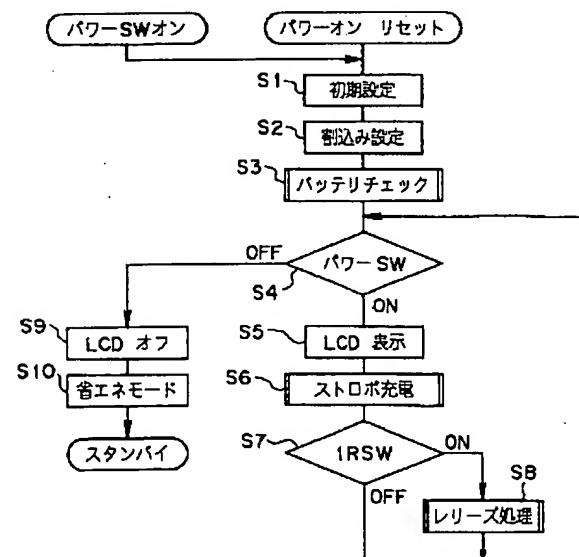
【図7】

検出信号A	検出信号B	OUT・A	OUT・B	OUT・C	判定
H	H	L	L	H	OK (単3型アルカリ)
H	L	L	H	L	NG (警告)
L	H	L	H	L	NG (警告)
L	L	H	L	L	OK (単3型リチウム)

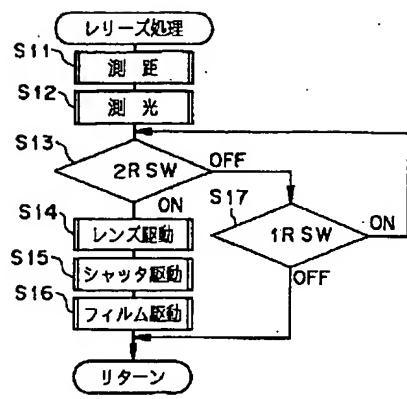
【図9】



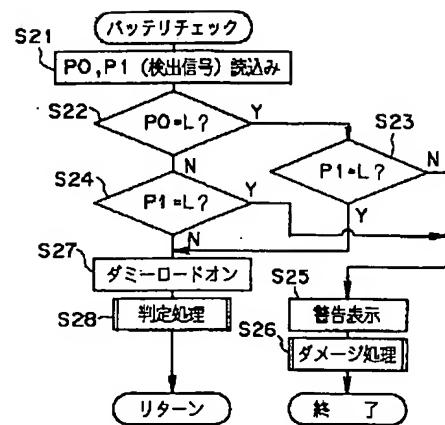
【図10】



【図 1 1】



【図 1 2】



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CLAIMS

[Claim(s)]

[Claim 1] the 1st cell characterized by providing the following, this 1st cell, and an appearance configuration -- abbreviation -- the 2nd cell by which it is the same and electrical characteristics differ -- alternative -- an usable camera A cell receipt room which has share space which can contain a cell chosen among the 1st cell of the above, or the 2nd cell of the above A cell distinction means to distinguish whether a cell with which this cell receipt room was loaded is which cell of the 1st cell of the above, and the 2nd cell of the above, and a display means to display a loading condition of a cell that the above-mentioned cell receipt room was loaded based on an output of this cell distinction means

[Claim 2] the 1st cell characterized by providing the following, this 1st cell, and an appearance configuration -- abbreviation -- a camera which can use alternatively two kinds of cells with the 2nd cell by which it is the same and electrical characteristics differ A cell receipt room which has share space which can two-piece contain at least one side of the 1st cell of the above, and the 2nd cell of the above A judgment means by which a class of cell with which this cell receipt room was loaded judges whether it is in a mixture loading condition that whether it comes out on the other hand, and is in a certain single loading condition and the 1st cell of the above of the 1st cell of the above or the 2nd cell of the above, and the 2nd cell of the above are intermingled

[Claim 3] A camera according to claim 2 characterized by providing a warning means to warn by judgment result of the above-mentioned judgment means when a loading condition of a cell with which the above-mentioned cell receipt room was loaded is in the above-mentioned mixture loading condition.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to a camera and the camera which can load with two or more kinds of cells alternatively, and can use them in detail.

[0002]

[Description of the Prior Art] as the main power supply conventionally used for the camera which performs photography etc. -- AA -- generally cells, such as an alkali manganese dry battery (the following and AA -- it is called a mold dry cell) of a mold and a lithium cell, are used. Moreover, as for the class of cell which can be used in the same camera etc., it is common to limit only to one kind of cell and to be designed.

[0003] However, in devices, such as a camera used mainly carrying, if the class of cell as a main power supply is limited [when the so-called cell piece etc. arises while using a camera etc. since the environment which uses devices, such as the camera, was not necessarily the environment which may always receive the cell corresponding to the device] Supposing the corresponding cell of a predetermined class cannot come to hand, the problem that use of the camera cannot be performed continuously will arise henceforth.

[0004] Then, when enabling it to use alternatively two or more kinds of predetermined cells and it becomes the above conditions since a possibility that an alternative cell might come to hand increased, a possibility that it will be avoidable that it will be in an unusable condition becomes large, and, therefore, the convenience of a camera etc. is made to improve in the same camera etc.

[0005] In consideration of such a thing, the proposal about the means which enabled it to use at least two kinds of cells alternatively in the same camera is made by JP,63-130752,U etc. The camera currently indicated by this JP,63-130752,U The 1st battery compartment which can contain one cell with the short length of the lithium cell (rated voltage of 3 volts) of a CR123A mold etc., AA -- the 2nd battery compartments which can contain two cells with the long length of a mold dry cell (rated voltage of 1.5 volts) etc. are made to form successively, and it arranges inside the main part of a camera, and it is constituted so that it may load with two kinds of cells by which an appearance configuration differs from an electric property alternatively and they can be used. And when it chose and loads with one of cells among two kinds of cells, it consists of this camera so that the always same supply voltage can be supplied. that is, -- the case where it loads with a lithium cell -- [3V(bolt) x1 **] -- it is -- AA -- since [it becomes [1.5V(bolt) x2]] when it loads with a mold dry cell, even if it chooses the cell of which class, compatibility of a power supply system is always planned by supply voltage so that it may be set to 3V (bolt)

[0006] by the way, the AA represented by the conventional alkali manganese dry battery etc. in recent years -- to the mold dry cell, this and an appearance configuration are formed in the shape of abbreviation isomorphism, and the proposal about the lithium cell (the following and explanation -- it is called a new style lithium cell for convenience) new type with which arrangement, an electric property, etc. of an electrode differ from each other is made.

[0007] A positive electrode is prepared in one end face of a longitudinal direction, and, as for this new style lithium cell, it comes to prepare the negative electrode on the peripheral surface of a cell proper. moreover, an appearance configuration -- the conventional AA -- although it is what consists of the shape of a cylindrical shape of the shape of a mold dry cell and abbreviation isomorphism --

the AA of the former [configuration / of a positive electrode] -- mold dry cells etc. differ a little, and they are formed so that the amount of protrusions of a positive electrode may decrease.

[0008]

[Problem(s) to be Solved by the Invention] however -- although electric properties differ -- an appearance configuration -- abbreviation -- when the cell which is two or more kinds currently similarly formed exists, it can load with any cell to the cell receipt room for being prepared in devices, such as a camera, etc. and containing a cell. In this case, it originates in generally the user of a device mixing up the class of cell, and in spite of being the cell by which that device does not correspond, what loads the cell receipt interior of a room with this accidentally is considered.

[0009] In such a case, supposing it makes the cell of a different class intermingled and loads with it to the power supply system constituted so that it might set, for example, series connection of the two cells might be carried out When it is in a photography standby condition and a load is small It originates in the internal impedance of each cell with which it was loaded differing, respectively, even if it seems to operate to normal seemingly. For example, it is possible to lapse into impossible of operation suddenly at the times of the overload to which voltage variation (voltage drop) becomes large, such as the time of motorised and stroboscope charge.

[0010] Thus, it is absolutely difficult for all the users that use devices, such as a camera, to understand the electric property of the cell corresponding to devices, such as the camera, and to judge and use the class of cell properly. therefore, an appearance configuration -- abbreviation -- it is thought that failure of loading devices, such as a camera, etc. with the cells of a different class accidentally when the cell by which the same classes differ exists in a commercial scene is unavoidable.

[0011] then -- if a user's convenience etc. is taken into consideration while being able to prevent such failure beforehand -- an appearance configuration -- abbreviation -- it is the same and it is desirable to constitute the power supply system by the side of a device so that it can be used, even if it loads with which cell of the cells (for example, the conventional AA a mold dry cell, a new style lithium cell, etc.) of a different class. However, use of it having to constitute so that it may forbid which makes the cell which is two or more kinds from which an electric property differs greatly intermingled is natural.

[0012] The place which this invention is made in view of the point mentioned above, and is made into the purpose It is the camera which enabled it to use alternatively two kinds of cells by which it is the same and electrical characteristics differ. an appearance configuration -- abbreviation -- When the class of cell with which the interior of a cell receipt room was loaded was distinguished, and the cell of a different class is intermingled and it is loaded with it, it is offering the camera which can prevent mixture use of the cell of a different class beforehand by detecting this and performing a display or warning to that effect.

[0013]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, a camera by the 1st invention The 2nd cell by which it is the same and electrical characteristics differ is alternatively set to an usable camera. the 1st cell, this 1st cell, and appearance configuration -- abbreviation -- A cell receipt room which has share space which can contain a cell chosen among the 1st cell of the above, or the 2nd cell of the above, It is characterized by providing a cell distinction means to distinguish whether a cell with which this cell receipt room was loaded is which cell of the 1st cell of the above, and the 2nd cell of the above, and a display means to display a loading condition of a cell that the above-mentioned cell receipt room was loaded based on an output of this cell distinction means.

[0014] In a camera which can use alternatively two kinds of cells with the 2nd cell by which it is the same and electrical characteristics differ moreover, a camera by the 2nd invention -- the 1st cell, this 1st cell, and appearance configuration -- abbreviation -- A cell receipt room which has share space which can two-piece contain at least one side of the 1st cell of the above, and the 2nd cell of the above, A class of cell with which this cell receipt room was loaded is characterized by providing a judgment means to judge whether it is in a mixture loading condition that whether it comes out on the other hand, and is in a certain single loading condition and the 1st cell of the above of the 1st cell of the above or the 2nd cell of the above, and the 2nd cell of the above are intermingled.

[0015] And in a camera by the 2nd above-mentioned invention, 3rd invention is characterized by

providing a warning means to warn, when a loading condition of a cell with which the above-mentioned cell receipt room was loaded by judgment result of the above-mentioned judgment means is in the above-mentioned mixture loading condition.

[0016]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of illustration explains this invention. A cell discernment means to output the predetermined detecting signal according to the class of cell with which the cell receipt room was loaded based on the difference of few configurations looked at by one electrode of two kinds of cells as the camera of 1 operation gestalt of this invention was shown in the conceptual diagram of drawing 1 , A judgment means to judge the loading condition of the cell with which it was loaded based on the signal from this cell discernment means, and to output a predetermined signal, When it is judged that a cell is intermingled and it is loaded with it based on this judgment signal, a warning means to output the signal for performing warning to that effect is provided, and it is constituted. Therefore, mixture use of the cell of a class which is different according to this invention can be beforehand prevented by such configuration. The camera of this operation gestalt is explained in full detail below.

[0017] Drawing 2 is the block block diagram showing the outline of the camera of 1 operation gestalt of this invention. In this drawing 2 , in order to avoid complicated-ization of a drawing, only the portion relevant to this invention is illustrated.

[0018] The camera of this operation gestalt is the cell discernment means 2 (refer to drawing 1 .) constituted by cell receipt room 1a which forms in the interior of the main part 1 of a camera the storage space which can contain two cells, respectively as shown in drawing 2 , and the pilot switch 12 which is the lever member 11 and cell detection means which are the interlocking member prepared near this cell receipt room 1a. the details of each configuration member -- mentioning later -- it is constituted by the control-system 6 grade which consists of various kinds of electrical circuits which control the system of this camera.

[0019] Cell receipt room 1a is electrically connected with the control system 6. Therefore, the power of the cell with which cell receipt room 1a was loaded is supplied to CPU20 which is the control circuit which controls the whole system of this camera through DC / DC circuit 28. In this CPU20 Ranging circuit 22 and the taking lens which calculates distance to photometry circuit 21 and the photographic subject which measures photographic subject brightness etc. and calculates a correct exposure value are driven. The shutter drive circuit 27 grade for driving a shutter wing etc. at the time of film drive circuit 26 and photography actuation which performs lens drive circuit 25 and film winding up, and rewinding actuation for performing focus actuation and zoom actuation, The actuation SW24 grade which consists of two or more switch groups which are display means to display the condition of cameras, such as various information, such as a mode of operation, photography information, etc. on a camera, such as a liquid crystal display (LCD) 23 and an electric power switch release switch, is connected electrically. And each above-mentioned circuit etc. is controlled by CPU20. Moreover, the command signal produced when actuation SW24 is operated by the user is received, and CPU20 controls various kinds of above-mentioned circuits, and it is constituted so that various kinds of actuation may be made to perform.

[0020] Moreover, the lever member 11 prepared near the cell receipt room 1a is formed so that it can move according to the class of cell with which cell receipt room 1a is loaded, and this lever member 11 acts on a pilot switch 12. And the detecting signal generated from this pilot switch 12 is outputted to CPU20, and, in response, CPU20 is carrying out the duty of a cell distinction means to distinguish the class of cell with which cell receipt room 1a was loaded. In addition, drawing 2 shows the condition that the two interior of cell receipt room 1a (the 1st battery holder and the 2nd battery holder) is loaded with the 1st cell 101 (it mentions later for details).

[0021] Here, the cell discernment means arranged in cell receipt room 1a and its near is explained in more detail. Drawing 3 and drawing 4 are the important section expanded sectional views expanding and showing a part of cell receipt room in the camera of 1 operation gestalt of this invention, drawing 3 shows the condition that the cell receipt room of this camera is loaded with the 1st cell, and drawing 4 shows the condition that the cell receipt room of this camera is loaded with the 2nd cell. In addition, in drawing 2 , and drawing 8 and drawing 9 which are mentioned later, in order to avoid complicated-ization of a drawing, the configuration of the lever member 11 is simplified and

shown and only drawing 3 and drawing 4 are illustrating the detailed configuration. [0022] the conventional AA, such as the 1st cell in which the cell which can be used in the camera of this operation gestalt, loading cell receipt room 1a is shown by agreement 101 in drawing 2 and drawing 3, for example, an alkali manganese dry battery etc., -- it is, a mold dry cell, and the 2nd cell shown by agreement 102 in drawing 4, for example, an above-mentioned new style lithium cell. That power supply system is formed so that two kinds of this cell can be used for this camera, loading with it alternatively.

[0023] the 1st cell 101 and 2nd cell 102 -- an appearance configuration -- abbreviation -- it is set up so that it may consist of the shape of same cylindrical shape and may become the ***** said size, and the both sides of the 1st cell 101 and the 2nd cell 102 are established for the positive electrode (+) in one end face of a longitudinal direction. While being prepared in the heights formed so that the positive electrode (+) of the 1st cell 101 might project a little towards the exterior, the end face by the side of the positive electrode (+) of the 2nd cell 102 has become abbreviation plan type-like. Moreover, the negative electrode (-) of the 1st cell 101 is prepared in the other-end side of a longitudinal direction, and the negative electrode (-) of the 2nd cell 102 is prepared over the abbreviation perimeter in a part of peripheral surface of a cell proper.

[0024] Thus, both configuration is slightly different although each positive electrode (+) of the 1st cell 101 and the 2nd cell 102 is prepared in abbreviation homotopic. On the other hand, arrangement of the negative electrode (-) is constituted so that it may become a location which is different by both the cells 101 and 102. Furthermore, both electric property is changed and is set up.

[0025] When the interior of the above-mentioned cell receipt room 1a is loaded with the 1st cell 101 of the above, it comes to be shown in drawing 2 and drawing 3. Moreover, when the interior of cell receipt room 1a is loaded with the 2nd cell 102, it comes to be shown in drawing 4.

[0026] That is, the positive electrode (+) of the 1st cell 101 and the 2nd cell 102 both contacts the 1st contact segment 14 arranged in the end side of a longitudinal direction in the interior of cell receipt room 1a. Moreover, the negative electrode (-) of the 1st cell 101 contacts the 2nd contact segment 15 arranged in the other end side of a longitudinal direction in the interior of cell receipt room 1a. And while the 1st contact segment 14 of the above is connected to the control system 6 of this camera 1, the 2nd contact segment 15 of the above is grounded with the 3rd contact segment 16 mentioned later.

[0027] On the other hand, the 3rd contact segment 16 is arranged in the location which can contact the negative electrode (-) of the 2nd cell 102 as shown in the side wall side of cell receipt room 1a at drawing 3. Therefore, if cell receipt room 1a is loaded with the 2nd cell 102, the 3rd contact segment 16 will contact the negative electrode of a cell 102.

[0028] Near the positive electrode (+) of the 1st cell 101, pore 1b is drilled in the location which counters the side wall side by the side of cell receipt room 1a, and tip contact section 11a of the lever member 11 is arranged from this pore 1b free [****] to cell receipt room 1a. This lever member 11 is supported to revolve free [rotation] in the interior of a camera 1 by fixed shank material 1c near the cell receipt room 1a. Moreover, in the middle of the operation arm of the lever member 11, an end is stopped by the holddown member inside a camera 1, and the end section of the energization member 13 which consists of an energization spring of the extensibility which has the energization force in the direction of arrow head X shown in drawing 3 etc. is stopped. Thereby, the energization force always rotated to a counterclockwise rotation is given to the lever member 11.

[0029] Moreover, it is near the cell receipt room 1a, and the pilot switch 12 which is a cell detection means for detecting and identifying the class of cell with which it was loaded is formed in the rotation field of the lever member 11. This pilot switch 12 is a switch of the general configuration formed of two terminal 12a and 12b, terminal-block 12c, etc., and when terminal 12a and 12b contact, a predetermined detecting signal generates it. This detecting signal is transmitted to CPU20 of a control system 6.

[0030] On the other hand, the configuration of the above-mentioned judgment means 3 is shown in drawing 5. In this example, three output signal (OUT) A-B-C is outputted from the judgment means 3 based on each detecting-signal A-B from two pilot switches 12 (the 1st cell detection means and the 2nd cell detection means). These output signals are outputted to the warning means 4, and this warning means 4 generates a beep sound etc., or it is constituted so that a predetermined alarm

display etc. may be made to perform using a display means (LCD23 grade).

[0031] Warning by this warning means 4 is generated only when it judges with having been loaded with the cell of a class by which the judgment means 3 (CPU20) differ in two cell receipt room 1a based on the detecting signal of the cell discernment means 2 (the lever member 11 and pilot switch 12) (mixture loading condition). He is trying for this to prevent mixture use of the cell by which classes differ in the camera of this operation gestalt. In addition, in drawing 6, the warning means 4 is illustrated taking the case of an output signal [OUT-B].

[0032] Moreover, the relation of the detecting signal generated by the pilot switch 12 and the output signal generated in the judgment means 3 based on this detecting signal has become as it is shown in the table shown in drawing 7.

[0033] Drawing 3, above-mentioned drawing 4, and above-mentioned drawing 8 and drawing 9 explain below the operation at the time of loading with a cell to cell receipt room 1a in the camera of this operation gestalt constituted as mentioned above. In addition, drawing 8 and drawing 9 are important section expanded sectional views in which it is expanded and shown near the cell receipt room of the camera of this operation gestalt like drawing 3 and drawing 4, drawing 8 shows the single loading condition that two cell receipt rooms are loaded with the 1st cell, and drawing 9 is drawing showing the mixture loading condition that one side of two cell receipt rooms is loaded with the 1st cell, and another side is loaded with the 2nd cell.

[0034] First, as shown in drawing 3 and drawing 8, when two cell receipt room 1a is loaded with the 1st cell 101 (single loading condition of the 1st cell 101), a positive electrode (+) contacts the 1st contact segment 14, and the negative electrode (-) contacts the 2nd contact segment 15, respectively. Between the end face by the side of the positive electrode (+) of the 1st cell 101 with which it was loaded at this time, and the internal surface of cell receipt room 1a which counters this end face, the crevice between some is generated by the heights prepared in the end face by the side of the positive electrode (+) of this cell 101. Therefore, the condition that the lever member 11 was positioned by the energization force to the direction of arrow head X of the energization member 13 (refer to drawing 2) at the usual condition, i.e., the position which made tip contact section 11a project a little inside cell receipt room 1a, is held. And a pilot switch 12 is an OFF state, and the detecting signal produced from this pilot switch 12 does not change with the condition of [H], as shown in drawing 7. The this [H] signal is transmitted to CPU20 of a control system 6.

[0035] At one cell receipt room 1a of the side loaded with the 1st cell 101 on the other hand when cell receipt room 1a was loaded with the 1st cell 101 and cell receipt room 1a of another side is loaded with the 2nd cell 102 (mixture loading condition of the 1st cell 101 and the 2nd cell 102), as while shows drawing 9, it is the same as that of **** (refer to drawing 3 and drawing 8).

[0036] Moreover, in cell receipt room 1a of near another side where it is loaded with the 2nd cell 102, as shown in drawing 4 and drawing 9, contacting the 1st contact segment 14 has the same positive electrode (+). Moreover, the negative electrode (-) contacts the 3rd contact segment 16. In this case, between the end face by the side of the positive electrode (+) of the 2nd cell 102 with which it was loaded, and the internal surface of cell receipt room 1a which counters this end face, the crevice between some seen when it loads with the 1st cell 101 is not produced. For the positive electrode (+) side of the 2nd cell 102, this is because it is formed so that it may differ and the end face by the side of a positive electrode (+) may turn into an abbreviation plane in the 1st cell 101.

[0037] Therefore, by the side edge section of the end face by the side of the positive electrode (+) of the 2nd cell 102, the energization force of the energization member 13 is resisted, it rotates, and the lever member 11 makes the arrow head X 2-way of drawing 3 save the energization member 13. Thereby, tip contact section 11a of the lever member 11 presses one terminal 12a of a pilot switch 12, and is made to contact terminal 12b. Then, this pilot switch 12 generates a predetermined detecting signal [L], as shown in drawing 7, and this signal [L] is transmitted to CPU20 of a control system 6.

[0038] In addition, in this case, although the other end side where the 2nd contact segment 15 differs from the arrangement side of the positive electrode (+) of the 2nd cell 102 as shown in drawing 4 and drawing 9 is contacted, since it is insulated, this other end side produces no problem.

[0039] Drawing 10, drawing 11, and drawing 12 show the operating sequence in this camera, respectively, and drawing 10 is a flow chart with which drawing 11 shows [release processing] and

drawing 12 shows processing of a [battery check] for processing of [power-on-reset power SW ON], respectively.

[0040] Processing of [power-on-reset power SW ON] in this camera is an electric power switch etc., as shown in drawing 10 (power switch etc.). It does not illustrate and starts by carrying out ON actuation.

[0041] First, in step S1, initial setting is performed and an interruption setup is performed in the following step S2. Subsequently, after processing (drawing 12 is explained in full detail) of a [battery check] is performed in step S3, the condition of Power SW (not shown) is checked in step S4. Here, if it is checked that Power SW has been operated to the OFF state, it will progress to processing of step S9, and after stopping the drive of LCD23 in this step S9, in step S10, this camera is set as energy-saving mode, and will be in a standby condition (standby).

[0042] Moreover, in above-mentioned step S4, if it is checked that Power SW is an ON state, will progress to processing of step S5, and it sets to this step S5. After displaying conditions, such as a mode of operation of a camera, on LCD23, in step S6, processing of [stroboscope charge] is performed and it is continuously checked in step S7 whether the 1st release switch (1RSW; not shown) has been operated. Here, if 1RSW was operated and it was turned on, after the subroutine (refer to drawing 10) of [release processing] of step S8 will be performed, return and subsequent processings are repeated to processing of above-mentioned step S4.

[0043] On the other hand, if the OFF state of 1RSW is checked in the above-mentioned step S7, in return and this step S4, the condition of Power SW will be again checked to processing of step S4, and subsequent processings will be repeated.

[0044] Drawing 11 is a flow chart which shows the subroutine of above-mentioned [release processing]. About this [release processing], it is the same as that of the operating sequence of a common camera.

[0045] If the sequence of [release processing] in this camera is explained briefly, in response to the ON signal of 1RSW of step S7 in above-mentioned drawing 10, first, in step S11, ranging actuation will be performed by the ranging circuit 22 and photometry actuation will be performed by the photometry circuit 21 in step S12. Next, in step S13, the signal of the 2nd release switch (2RSW; not shown) is checked. When it considers as an ON state here, it progresses to processing of step S14, and if it is an OFF state, it will progress to processing of step S17.

[0046] In step S14, based on the ranging result by the above-mentioned step S11 etc., lens drive actuation is performed by the lens drive circuit 25, and it continues by it, and in step S15, based on the photometry result by the above-mentioned step S12 etc., a shutter etc. drives and photography actuation is performed by the shutter drive circuit 27. Furthermore, in step S16, film feed actuation for moving the following photography coma to a photography ready position by the film drive circuit 26 is performed. Then, a series of release actuation is completed and it returns to step S4 of drawing 10 (return).

[0047] If it is judged in the above-mentioned step S13 on the other hand that 2RSW is an OFF state and it progresses to processing of step S17, in this step S17, the signal of 1RSW will be checked again. Here, when 1RSW is an ON state, return and subsequent processings are repeated to processing of the above-mentioned step S13. Moreover, when 1RSW is made into an OFF state, it is judged as that for which a series of release processings were interrupted, and returns to step S4 of drawing 10 (return).

[0048] Next, drawing 12 explains the operating sequence of processing of the [battery check] in step S3 of drawing 10 in more detail. As shown in drawing 12, in step S21, CPU20 reads two detecting signals (P0, P1) from two pilot switches 12 first. In addition, a detecting signal P0 and P1 are equivalent to detecting-signal A-B in above-mentioned explanation here.

[0049] In the following step S22, the check of whether one detecting signal P0 is P0=L among the read detecting signals is performed with reference to drawing 7. here, it is not P0=L (it is P0=H) -- ** -- the case where it is judged -- one cell receipt room 1a -- AA -- it progresses to processing of the following step S24 as what is loaded with the 1st cell 101 which is a mold dry cell.

[0050] In step S24, it checks similarly whether it is detecting-signal P1=L of another side with reference to drawing 7. here, it is not P1=L (it is P1=H) -- ** -- the case where it is judged -- cell receipt room 1a of another side -- AA -- it progresses to processing of the following step S27 as what

is loaded with the 1st cell 101 which is a mold dry cell.

[0051] When it is judged in step S22 on the other hand that it is P0=L and it is judged that it is P1=L in the following step S23, it progresses to processing of the following step S27 as that by which both two cell receipt room 1a is loaded with the 2nd cell 102 which is a new style lithium cell.

[0052] That is, when it is judged that it is in the single loading condition that two both sides of cell receipt room 1a are loaded with the cell of the same kind, progress to processing of step S27, and it sets to this step S27. After processing of [dummy-load-on], i.e., actual battery check actuation, is performed, it progresses to processing of step S28, and the sequence of [judgment processing] is performed in this step S28. And processing of a series of [battery checks] is ended, and it returns to processing of step S4 of drawing 10 (return).

[0053] on the other hand, when it is judged in step S22 that it is P0=L and it is judged in the following step S23 that it is not P1=L (it is P1=H) the 2nd cell 102 which is a new style lithium cell at one cell receipt room 1a -- cell receipt room 1a of another side -- AA -- the 1st cell 101 which is a mold dry cell progresses to processing of step S25 as that with which it is loaded, respectively.

[0054] moreover, when it is judged in step S22 that it is not P0=L (it is P0=H) and it is judged in the following step S24 that it is P1=L one cell receipt room 1a -- AA -- the 1st cell 101 which is a mold dry cell progresses to processing of step S25 as that by which cell receipt room 1a of another side is loaded with the 2nd cell 102 which is a new style lithium cell, respectively.

[0055] That is, when the cell of a class which is different to two both sides of cell receipt room 1a is judged to be in the mixture loading condition with which it is loaded, respectively, it progresses to processing of step S25, and warning by the warning means 4, for example, generating of a beep sound, the alarm display using LCD23, etc. are performed in this step S25. And in step S26, after performing the sequence of [damage processing], a series of actuation is ended.

[0056] As explained above, when according to the up Norikazu operation gestalt it detects the class of cell with which two cell receipt room 1a was loaded, respectively and is loaded with a different cell since actuation of a camera was forbidden while being made to perform warning by the warning means 4 -- an appearance configuration -- abbreviation -- in spite of being the same, it can prevent using it, making the cell of a different class constituted so that electrical characteristics might differ intermingled.

[0057] [Additional remark] According to the operation gestalt of invention described above, invention which has the following configurations can be obtained again. (1) Two kinds of cells with the 2nd cell by which it is the same and electrical characteristics differ are alternatively set to an usable camera. the 1st cell, this 1st cell, and appearance configuration -- abbreviation -- [namely,] The 1st battery holder which the storage space which the 1st cell of the above and the 2nd cell of the above share is formed, and enables the one receipt of the 1st cell of the above, or the 2nd cell of the above alternatively, The 2nd battery holder which the storage space which the 1st cell of the above and the 2nd cell of the above share is formed, and enables the one receipt of the 1st cell of the above, or the 2nd cell of the above alternatively, The cell receipt room which has the 1st battery holder of the above, and the 2nd battery holder of the above, A 1st cell detection means to detect whether the cell with which was formed in the 1st battery holder of the above, and this 1st battery holder was loaded is the 1st cell of the above, and whether it is the 2nd cell of the above, A 2nd cell detection means to detect whether the cell with which was formed in the 2nd battery holder of the above, and this 2nd battery holder was loaded is the 1st cell of the above, and whether it is the 2nd cell of the above, The camera possessing a judgment means to judge the class of cell contained by the above-mentioned cell receipt room according to the detection result of the above-mentioned 1st cell detection means and the above-mentioned 2nd cell detection means.

[0058] (2) In a camera given in additional remark 1, the above-mentioned judgment means judges whether it is in the mixture loading condition with which it was loaded by whether the condition of the class of cell with which it was loaded at the above-mentioned cell receipt room is in the single loading condition were loaded only with one of classes among the 1st cell of the above, or the 2nd cell of the above, and intermingling the 1st cell of the above, and the 2nd cell of the above.

[0059] (3) When either the 1st cell of the above or the 2nd cell of the above is intermingled in the 1st battery holder of the above, another side of the 1st cell of the above or the 2nd cell of the above is intermingled in the 2nd battery holder of the above and the additional remark 1 is loaded in the

camera of a publication based on the output of the above-mentioned judgment means, provide further a warning means to perform warning to that effect.

[0060] (4) Provide further the display means which displays according to the loading condition of the class of cell with which the additional remark 1 was loaded in the camera of a publication at the above-mentioned cell receipt room based on the output of the above-mentioned judgment means.

[0061] (5) In a camera given in additional remark 1, the above-mentioned 1st cell detection means and the above-mentioned 2nd cell detection means detect the class of cell with which it was loaded using some difference parts of the appearance configurations of the 1st cell of the above, and the 2nd cell of the above.

[0062] In a camera given in additional remark 5 (6) The above-mentioned 1st cell detection means and the above-mentioned 2nd cell detection means It has the interlocking member prepared possible [displacement], and consists of contacting the periphery section of the 1st pilot switch and the 2nd pilot switch which have electrically the condition in which an output of the 1st signal or 2nd signal is possible, respectively, the 1st cell of the above with which the above-mentioned cell receipt room was loaded, and the 2nd cell of the above.

[0063] In a camera given in additional remark 5 (7) The above-mentioned 1st cell detection means and the above-mentioned 2nd cell detection means By contacting some difference parts of the appearance configurations of the 1st cell of the above, and the 2nd cell of the above The interlocking member displaced in the 2nd condition when are loaded with the 1st cell of the above and the 1st condition is loaded with the 2nd cell of the above, When it is in the 1st condition of the above, the 1st signal is outputted, and when it is in the 2nd condition of the above, it has the pilot switch which outputs the 2nd signal, and is constituted.

[0064] In the camera of additional remark 1 or additional remarks 2, 3, 4, 5, and 6, and any one publication of seven (8) The 1st cell of the above It has two electrodes, a positive electrode and a negative electrode, in the both-ends side of a longitudinal direction, and the electrode of either a positive electrode or a negative electrode is prepared in the end side of a longitudinal direction, and the 2nd cell of the above has the electrode of another side among the positive electrode or the negative electrode on the peripheral surface which intersects a longitudinal direction.

[0065] (9) In the camera of additional remark 1 or additional remarks 2, 3, 4, 5, and 6, and any one publication of seven, the 1st cell of the above differs in electrode disposition and rated voltage from the 2nd cell of the above, respectively.

[0066] (10) an appearance configuration -- an outline -- the camera provide the cell receipt room which can contain the above-mentioned selected cell in the camera which can use alternatively two or more kinds of the cells by which it is the same and electrical characteristics differ, the cell distinction means distinguish the loading condition of the cell with which this cell receipt room was loaded, and the display means display the loading condition of the cell with which the above-mentioned cell receipt room was loaded based on the output of this cell distinction means.

[0067] (11) an appearance configuration -- an outline -- the camera possessing a judgment means judge whether it is in the loading condition in which the loading condition of the cell with which the cell receipt room which can contain the above-mentioned selected cell in the camera which can use alternatively two or more kinds of cells by which it is the same and electrical characteristics' differ, and this cell receipt room were loaded being in the condition of only the cell of the same class, or a cell of a different kind were intermingled.

[0068] (12) Provide further a warning means to warn, in the loading condition that the loading condition of the cell with which the additional remark 11 was loaded by the judgment result of the above-mentioned judgment means in the camera of a publication at the above-mentioned cell receipt room made the cell of a different kind intermingled.

[0069]

[Effect of the Invention] It is the camera which enabled it to use alternatively two kinds of cells by which it is the same and electrical characteristics differ. according to [as stated above] this invention -- an appearance configuration -- abbreviation -- When the class of cell with which the interior of a cell receipt room was loaded was distinguished, and the cell of a different class is intermingled and it is loaded with it, the camera which can prevent mixture use of the cell of a different class beforehand can be offered by detecting this and performing warning to that effect.

[Translation done.]

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PRIOR ART

[Description of the Prior Art] as the main power supply conventionally used for the camera which performs photography etc. -- AA -- generally cells, such as an alkali manganese dry battery (the following and AA -- it is called a mold dry cell) of a mold and a lithium cell, are used. Moreover, as for the class of cell which can be used in the same camera etc., it is common to limit only to one kind of cell and to be designed.

[0003] However, it sets to devices, such as a camera used mainly carrying, and is a main power supply. Supposing the cell of a predetermined class which corresponds when the so-called cell piece etc. arises while using a camera etc. cannot come to hand since the environment which uses devices, such as the camera, is not necessarily the environment which may always receive the cell corresponding to the device if the class of ***** is limited, the problem that use of the camera cannot be performed continuously will arise henceforth.

[0004] Then, when enabling it to use alternatively two or more kinds of predetermined cells and it becomes the above conditions since a possibility that an alternative cell might come to hand increased, a possibility that it will be avoidable that it will be in an unusable condition becomes large, and, therefore, the convenience of a camera etc. is made to improve in the same camera etc.

[0005] In consideration of such a thing, the proposal about the means which enabled it to use at least two kinds of cells alternatively in the same camera is made by JP,63-130752,U etc. The camera currently indicated by this JP,63-130752,U, the 1st battery compartment which can contain one cell with the short length of the lithium cell (rated voltage of 3 volts) of a CR123A mold etc., and AA -- the 2nd battery compartments which can contain two cells with the long length of a mold dry cell (rated voltage of 1.5 volts) etc. are made to form successively, and it arranges inside the main part of a camera, and it is constituted so that it may load with two kinds of cells by which an appearance configuration differs from an electric property alternatively and they can be used. And when it chose and loads with one of cells among two kinds of cells, it consists of this camera so that the always same supply voltage can be supplied. that is, -- the case where it loads with a lithium cell -- [3V(bolt) x1 **] -- it is -- AA -- since [it becomes [1.5V(bolt) x2]] when it loads with a mold dry cell, even if it chooses the cell of which class, compatibility of a power supply system is always planned by supply voltage so that it may be set to 3V (bolt)

[0006] by the way, the AA represented by the conventional alkali manganese dry battery etc. in recent years -- to the mold dry cell, this and an appearance configuration are formed in the shape of abbreviation isomorphism, and the proposal about the lithium cell (the following and explanation -- it is called a new style lithium cell for convenience) new type with which arrangement, an electric property, etc. of an electrode differ from each other is made.

[0007] A positive electrode is prepared in one end face of a longitudinal direction, and, as for this new style lithium cell, it comes to prepare the negative electrode on the peripheral surface of a cell proper. moreover, an appearance configuration -- the conventional AA -- although it is what consists of the shape of a cylindrical shape of the shape of a mold dry cell and abbreviation isomorphism -- the AA of the former [configuration / of a positive electrode] -- mold dry cells etc. differ a little, and they are formed so that the amount of protrusions of a positive electrode may decrease.

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EFFECT OF THE INVENTION

[Effect of the Invention] it stated above -- as -- this invention -- an appearance configuration -- abbreviation -- it is the camera which enabled it to use alternatively two kinds of cells by which it is the same and electrical characteristics differ, and when the class of cell with which the interior of a cell receipt room was loaded was distinguished, and the cell of a different class is intermingled and it is loaded with it, this is detected and warning to that effect is performed. Therefore, the camera which can prevent mixture use of the cell of a different class beforehand can be offered.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] however -- although electric properties differ -- an appearance configuration -- abbreviation -- when the cell which is two or more kinds currently similarly formed exists, it can load with any cell to the cell receipt room for being prepared in devices, such as a camera, etc. and containing a cell. In this case, it originates in generally the user of a device mixing up the class of cell, and in spite of being the cell by which that device does not correspond, what loads the cell receipt interior of a room with this accidentally is considered.

[0009] In such a case, supposing it makes the cell of a different class intermingled and loads with it to the power supply system constituted so that it might set, for example, series connection of the two cells might be carried out. When it is in a photography standby condition and a load is small. It originates in the internal impedance of each cell with which it was loaded differing, respectively, even if it seems to operate to normal seemingly. For example, it is possible to lapse into impossible of operation suddenly at the times of the overload to which voltage variation (voltage drop) becomes large, such as the time of motorised and stroboscope charge.

[0010] Thus, it is absolutely difficult for all the users that use devices, such as a camera, to understand the electric property of the cell corresponding to devices, such as the camera, and to judge and use the class of cell properly. therefore, an appearance configuration -- abbreviation -- it is thought that failure of loading devices, such as a camera, etc. with the cells of a different class accidentally when the cell by which the same classes differ exists in a commercial scene is unavoidable.

[0011] then -- if a user's convenience etc. is taken into consideration while being able to prevent such failure beforehand -- an appearance configuration -- abbreviation -- it is the same and it is desirable to constitute the power supply system by the side of a device so that it can be used, even if it loads with which cell of the cells (for example, the conventional AA a mold dry cell, a new style lithium cell, etc.) of a different class. However, use of it having to constitute so that it may forbid which makes the cell which is two or more kinds from which an electric property differs greatly intermingled is natural.

[0012] The place which this invention is made in view of the point mentioned above, and is made into the purpose It is the camera which enabled it to use alternatively two kinds of cells by which it is the same and electrical characteristics differ. an appearance configuration -- abbreviation -- When the class of cell with which the interior of a cell receipt room was loaded was distinguished, and the cell of a different class is intermingled and it is loaded with it, it is offering the camera which can prevent mixture use of the cell of a different class beforehand by detecting this and performing a display or warning to that effect.

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MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, a camera by the 1st invention The 2nd cell by which it is the same and electrical characteristics differ is alternatively set to an usable camera. the 1st cell, this 1st cell, and appearance configuration -- abbreviation -- A cell receipt room which has share space which can contain a cell chosen among the 1st cell of the above, or the 2nd cell of the above, It is characterized by providing a cell distinction means to distinguish whether a cell with which this cell receipt room was loaded is which cell of the 1st cell of the above, and the 2nd cell of the above, and a display means to display a loading condition of a cell that the above-mentioned cell receipt room was loaded based on an output of this cell distinction means.

[0014] In a camera which can use alternatively two kinds of cells with the 2nd cell by which it is the same and electrical characteristics differ moreover, a camera by the 2nd invention -- the 1st cell, this 1st cell, and appearance configuration -- abbreviation -- A cell receipt room which has share space which can two-piece contain at least one side of the 1st cell of the above, and the 2nd cell of the above, A class of cell with which this cell receipt room was loaded is characterized by providing a judgment means to judge whether it is in a mixture loading condition that whether it comes out on the other hand, and is in a certain single loading condition and the 1st cell of the above of the 1st cell of the above or the 2nd cell of the above, and the 2nd cell of the above are intermingled.

[0015] And in a camera by the 2nd above-mentioned invention, 3rd invention is characterized by providing a warning means to warn, when a loading condition of a cell with which the above-mentioned cell receipt room was loaded by judgment result of the above-mentioned judgment means is in the above-mentioned mixture loading condition.

[0016] [Embodiment of the Invention] Hereafter, the gestalt of implementation of illustration explains this invention. A cell discernment means to output the predetermined detecting signal according to the class of cell with which the cell receipt room was loaded based on the difference of few configurations looked at by one electrode of two kinds of cells as the camera of 1 operation gestalt of this invention was shown in the conceptual diagram of drawing 1 , A judgment means to judge the loading condition of the cell with which it was loaded based on the signal from this cell discernment means, and to output a predetermined signal, When it is judged that a cell is intermingled and it is loaded with it based on this judgment signal, a warning means to output the signal for performing warning to that effect is provided, and it is constituted. Therefore, mixture use of the cell of a class which is different according to this invention can be beforehand prevented by such configuration. The camera of this operation gestalt is explained in full detail below.

[0017] Drawing 2 is the block block diagram showing the outline of the camera of 1 operation gestalt of this invention. In this drawing 2 , in order to avoid complicated-ization of a drawing, only the portion relevant to this invention is illustrated.

[0018] The camera of this operation gestalt is the cell discernment means 2 (refer to drawing 1 .) constituted by cell receipt room 1a which forms in the interior of the main part 1 of a camera the storage space which can contain two cells, respectively as shown in drawing 2 , and the pilot switch 12 which is the lever member 11 and cell detection means which are the interlocking member prepared near this cell receipt room 1a. the details of each configuration member -- mentioning later -- it is constituted by the control-system 6 grade which consists of various kinds of electrical circuits which control the system of this camera.

[0019] Cell receipt room 1a is electrically connected with the control system 6. Therefore, the power of the cell with which cell receipt room 1a was loaded is supplied to CPU20 which is the control circuit which controls the whole system of this camera through DC / DC circuit 28. In this CPU20 Ranging circuit 22 and the taking lens which calculates distance to photometry circuit 21 and the photographic subject which measures photographic subject brightness etc. and calculates a correct exposure value are driven. The shutter drive circuit 27 grade for driving a shutter wing etc. at the time of film drive circuit 26 and photography actuation which performs lens drive circuit 25 and film winding up, and rewinding actuation for performing focus actuation and zoom actuation, The actuation SW24 grade which consists of two or more switch groups which are display means to display the condition of cameras, such as various information, such as a mode of operation, photography information, etc. on a camera, such as a liquid crystal display (LCD) 23 and an electric power switch release switch, is connected electrically. And each above-mentioned circuit etc. is controlled by CPU20. Moreover, the command signal produced when actuation SW24 is operated by the user is received, and CPU20 controls various kinds of above-mentioned circuits, and it is constituted so that various kinds of actuation may be made to perform.

[0020] Moreover, the lever member 11 prepared near the cell receipt room 1a is formed so that it can move according to the class of cell with which cell receipt room 1a is loaded, and this lever member 11 acts on a pilot switch 12. And the detecting signal generated from this pilot switch 12 is outputted to CPU20, and, in response, CPU20 is carrying out the duty of a cell distinction means to distinguish the class of cell with which cell receipt room 1a was loaded. In addition, drawing 2 shows the condition that the two interior of cell receipt room 1a (the 1st battery holder and the 2nd battery holder) is loaded with the 1st cell 101 (it mentions later for details).

[0021] Here, the cell discernment means arranged in cell receipt room 1a and its near is explained in more detail. Drawing 3 and drawing 4 are the important section expanded sectional views expanding and showing a part of cell receipt room in the camera of 1 operation gestalt of this invention, drawing 3 shows the condition that the cell receipt room of this camera is loaded with the 1st cell, and drawing 4 shows the condition that the cell receipt room of this camera is loaded with the 2nd cell. In addition, in drawing 2, and drawing 8 and drawing 9 which are mentioned later, in order to avoid complicated-ization of a drawing, the configuration of the lever member 11 is simplified and shown and only drawing 3 and drawing 4 are illustrating the detailed configuration.

[0022] the conventional AA, such as the 1st cell in which the cell which can be used in the camera of this operation gestalt, loading cell receipt room 1a is shown by agreement 101 in drawing 2 and drawing 3, for example, an alkali manganese dry battery etc., -- it is, a mold dry cell, and the 2nd cell shown by agreement 102 in drawing 4, for example, an above-mentioned new style lithium cell. That power supply system is formed so that two kinds of this cell can be used for this camera, loading with it alternatively.

[0023] the 1st cell 101 and 2nd cell 102 -- an appearance configuration -- abbreviation -- it is set up so that it may consist of the shape of same cylindrical shape and may become the ***** said size, and the both sides of the 1st cell 101 and the 2nd cell 102 are established for the positive electrode (+) in one end face of a longitudinal direction. While being prepared in the heights formed so that the positive electrode (+) of the 1st cell 101 might project a little towards the exterior, the end face by the side of the positive electrode (+) of the 2nd cell 102 has become abbreviation plan type-like. Moreover, the negative electrode (-) of the 1st cell 101 is prepared in the other-end side of a longitudinal direction, and the negative electrode (-) of the 2nd cell 102 is prepared over the abbreviation perimeter in a part of peripheral surface of a cell proper.

[0024] Thus, both configuration is slightly different although each positive electrode (+) of the 1st cell 101 and the 2nd cell 102 is prepared in abbreviation homotopic. On the other hand, arrangement of the negative electrode (-) is constituted so that it may become a location which is different by both the cells 101 and 102. Furthermore, both electric property is changed and is set up.

[0025] When the interior of the above-mentioned cell receipt room 1a is loaded with the 1st cell 101 of the above, it comes to be shown in drawing 2 and drawing 3. Moreover, when the interior of cell receipt room 1a is loaded with the 2nd cell 102, it comes to be shown in drawing 4.

[0026] That is, the positive electrode (+) of the 1st cell 101 and the 2nd cell 102 both contacts the 1st contact segment 14 arranged in the end side of a longitudinal direction in the interior of cell receipt

room 1a. Moreover, the negative electrode (-) of the 1st cell 101 contacts the 2nd contact segment 15 arranged in the other end side of a longitudinal direction in the interior of cell receipt room 1a. And while the 1st contact segment 14 of the above is connected to the control system 6 of this camera 1, the 2nd contact segment 15 of the above is grounded with the 3rd contact segment 16 mentioned later.

[0027] On the other hand, the 3rd contact segment 16 is arranged in the location which can contact the negative electrode (-) of the 2nd cell 102 as shown in the side wall side of cell receipt room 1a at drawing 3. Therefore, if cell receipt room 1a is loaded with the 2nd cell 102, the 3rd contact segment 16 will contact the negative electrode of a cell 102.

[0028] Near the positive electrode (+) of the 1st cell 101, pore 1b is drilled in the location which counters the side wall side by the side of cell receipt room 1a, and tip contact section 11a of the lever member 11 is arranged from this pore 1b free [****] to cell receipt room 1a. This lever member 11 is supported to revolve free [rotation] in the interior of a camera 1 by fixed shank material 1c near the cell receipt room 1a. Moreover, in the middle of the operation arm of the lever member 11, an end is stopped by the holddown member inside a camera 1, and the end section of the energization member 13 which consists of an energization spring of the extensibility which has the energization force in the direction of arrow head X shown in drawing 3 etc. is stopped. Thereby, the energization force always rotated to a counterclockwise rotation is given to the lever member 11.

[0029] Moreover, it is near the cell receipt room 1a, and the pilot switch 12 which is a cell detection means for detecting and identifying the class of cell with which it was loaded is formed in the rotation field of the lever member 11. This pilot switch 12 is a switch of the general configuration formed of two terminal 12a and 12b, terminal-block 12c, etc., and when terminal 12a and 12b contact, a predetermined detecting signal generates it. This detecting signal is transmitted to CPU20 of a control system 6.

[0030] On the other hand, the configuration of the above-mentioned judgment means 3 is shown in drawing 5. At this example, they are two pilot switches 12.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The conceptual diagram showing this invention.

[Drawing 2] The block block diagram showing the outline of the camera of 1 operation gestalt of this invention.

[Drawing 3] Drawing in which being the important section expanded sectional view expanding and showing a part of cell receipt room of the camera of 1 operation gestalt of this invention, and showing the condition that the cell receipt room is loaded with the 1st cell.

[Drawing 4] Drawing in which being the important section expanded sectional view expanding and showing a part of cell receipt room of the camera of 1 operation gestalt of this invention, and showing the condition that the cell receipt room is loaded with the 2nd cell.

[Drawing 5] Drawing showing the concrete example of a configuration of the judgment means of drawing 1.

[Drawing 6] Drawing showing the concrete example of a configuration of the warning means of drawing 1.

[Drawing 7] Drawing showing the relation of the detecting signal generated by the pilot switch in the camera of drawing 2, and the output signal generated by the judgment means based on this detecting signal.

[Drawing 8] The important section expanded sectional view showing the condition that two cell receipt rooms of the camera of drawing 1 are loaded with the 1st cell.

[Drawing 9] The important section expanded sectional view showing the condition that one side of two cell receipt rooms of the camera of drawing 1 is loaded with the 1st cell, and another side is loaded with the 2nd cell.

[Drawing 10] The flow chart which shows processing of [power-on-reset power SW ON] among the operating sequences in the camera of drawing 1.

[Drawing 11] The flow chart which shows [release processing] among the operating sequences in the camera of drawing 1.

[Drawing 12] The flow chart which shows processing of a [battery check] among the operating sequences in the camera of drawing 1.

[Description of Notations]

1 Main part of a camera

1a Cell receipt room

2 Cell discernment means

3 Judgment means

4 Warning means

6 Control system

11 Lever member (a cell discernment means, interlocking member)

12 Pilot switch (a cell discernment means, cell detection means)

14 The 1st contact segment

15 The 2nd contact segment

16 The 3rd contact segment

20 CPU (control means; a cell distinction means, judgment means)

23 LCD (liquid crystal display; a display means, warning means)

101 The 1st cell
102 The 2nd cell

[Translation done.]

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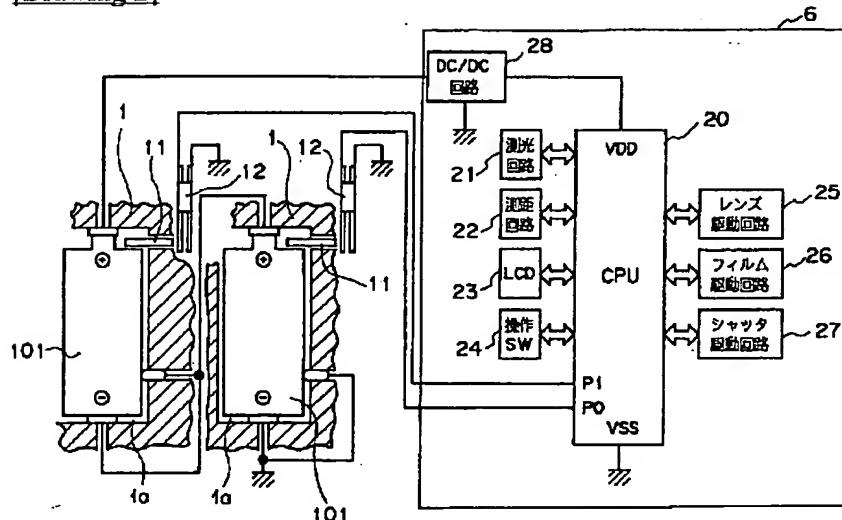
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DRAWINGS

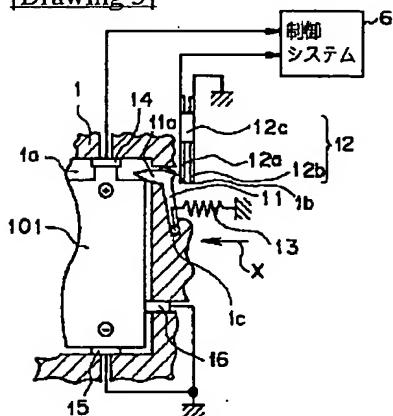
[Drawing 1]



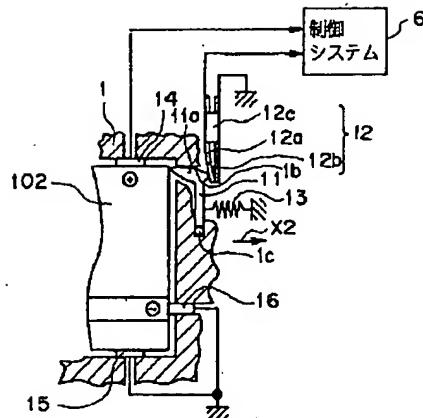
[Drawing 2]



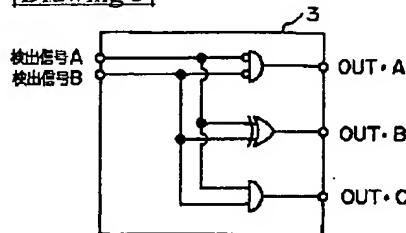
[Drawing 3]



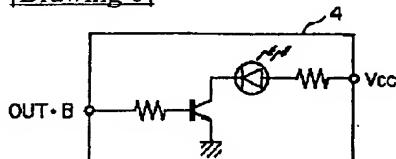
[Drawing 4]



[Drawing 5]



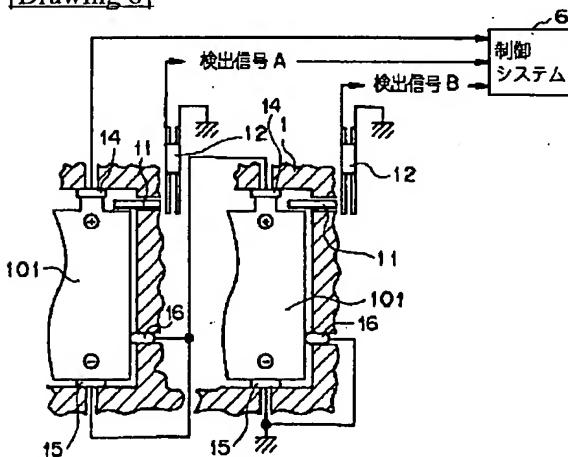
[Drawing 6]



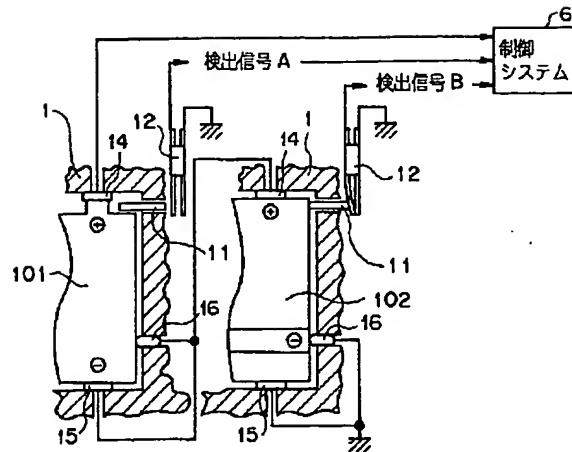
[Drawing 7]

検出信号A	検出信号B	OUT·A	OUT·B	OUT·C	判定
H	H	L	L	H	OK (単3型アルカリ)
H	L	L	H	L	NG (警告)
L	H	L	H	L	NG (警告)
L	L	H	L	L	OK (単3型リチウム)

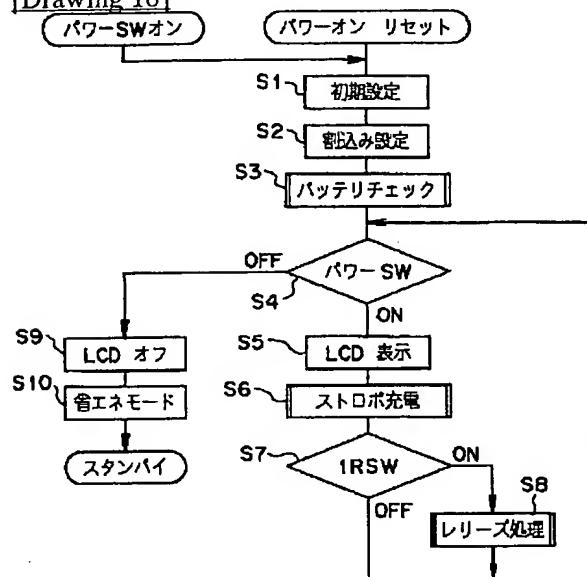
[Drawing 8]



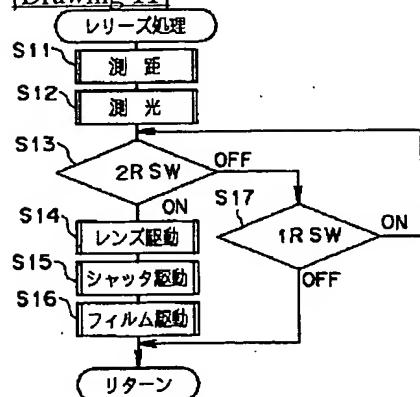
[Drawing 9]



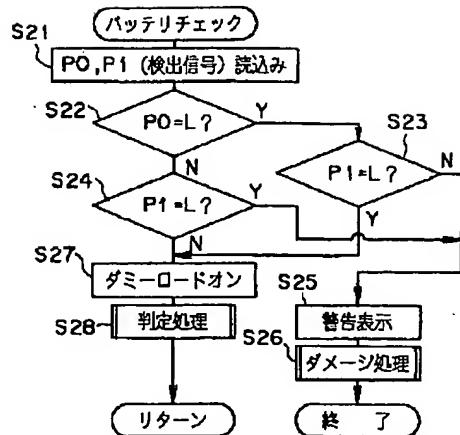
[Drawing 10]



[Drawing 11]



[Drawing 12]



[Translation done.]